Game Developer Competition

Between USA and China

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Abstract—**This study aims to obtain a comparison between two biggest economic Country, and see they focus on games industry global market. In this study researchers took the data from secondary data in global market game then analyzed data quantitatively and objectively by comparing data with USA & China video game market as the subject. The result of this study expected to be used as recommendation for game developers in choosing which platform to focus in designing their games by following patterns of subject reference that has been existed, in accordance with a model in design business criteria.**

Keywords—game, USA, China, global, market, developer

I. INTRODUCTION

These days, in the era of digital technology, video games have become daily need for most people, especially Generation Z. The rapid development of technology has made variety of video game increased and give variety of option for people in choosing their video games. There were a lot of video game devices that have been release in market, in 1977, ATARI released and made a breakthrough in video game culture, after that in 1983, NES (Nintendo Entertainment System) joined the video games industry, followed by SEGA, 3DO, PlayStation, Android, etc. We can say that from 90s until now, video game has developed rapidly. In the 90s until 2000s almost every console in global market always made as a home consoles, but starting from 2000s, video games had begun to made portable. The rapid development in video games not only seen in the video game console or device, but also in it's game itself, more realistic and unique graphic, alot of varieties in gameplays and genres; and better improvement in gaming experience.

In the past, mostly we play video games in console, video games platform that are made only to play video games, but today, there are three type of video game platform that are popular in market, there are PC (Personal Computer) platform, console platform, and mobile phone platform [1]. PC have evolved from working device to video game device, and video game is one of their big selling point, as we can see a company like ATI and NVIDIA that make video games as their main selling point. Console platform still able to compete even from functionality aspect, they only have one main function, that is to play video games. There are three big brand of console

game companies today, there are SONY with their PlayStation, Nintendo with their Switch and Wii, and Microsoft with their XBOX. These three console brands has a different gaming experience as each brand have their own personality brand [2]. Since 2000s mobile phone also have became one of big video game platform, especially since Android released. The rapid development in mobile phone technology have made todays mobile phone as a portable PC that offer a wide variety of function, and one of them is video games. These three platforms offer a lot of variety of video games title and unique gaming experience based on each type of platform; and made video games industry as one of the big industry in today's world.

The rapid growth of video games industry affected by a lot of aspects such as the rapid growth of technology development and certain lifestyle of today's people that see video games as one of their source of entertainment or even as one of their occupation. From the history of video games, we can see that video game's growth closely related to the growth of digital technology, for examples are how the internet makes a big changes in video games culture, a lot of video games title offers multiplayer features so people can play with a lot of people around the world; also when Augmented Reality and Virtual Reality coming to video game industry, every platform offer AR and VR as one of their selling point; even from the development of new improved hardware in digital technology, it's affecting the growth and changes in video game industry. From the lifestyle aspect, todays world dominated by Generation Z and Millennials, which are have a close relationship with technology in their daily life [3] and their close relationship with mobile phone [4]. In 2017, 48% of Generation Z and Millennials dominated the total of media audience, with 26% of it is Generation Z [5]. These two generations are a lot closer to technology than other generation. In 2018, 96% of Generation Z owns a smartphone [6], also 73% of Generation Z and 63% of Millennials owns a video game console. How Generation Z and Millennials' habits towards technology and video games, it make changes in world's lifestyle and therefore make changes in video game industries' growth.

Rapid growth in video game industry and variety of video game platform in market give video games developer a wide range of choice and a lot of freedom in developing their video game title, also it is easier and cheaper nowadays for indie video game developer to develop a game with a lot of choices in online video game store. There are a lot of online video game store that exist right now, PlayStation with their PlayStation store, android with their google play, pc with their steam store, etc. All these online video game stores makes indie video game developer don't need to think about distribution budget or promotional budget which make it easier for indie video game developer to survive in the industry. Today there are a lot video games developer, indie or big developer, that still active in making video games and they producing a lot of video games title each year. If we look at some video game titles based in their platform, there is some pattern that exist today. For console platform, there are two types of titles existed, exclusive title, which means this video game title only exist in one console brand, for example PlayStation with *"The Last of Us"*, *"Detroit Become Human"*, *"Horizon Zero Dawn"*, etc; and multi platform title, means this title exist not only in one console brand but also exist on other console brand even on PC. This pattern makes console and PC have some same video game titles, and only a few titles that are exclusive to each console brand. In the other side, mobile games have their own playground in term of video game title. Most of mobile game titles only exist in mobile phone. Even if there are some same title, most of them have a different graphic and different gameplay than the console or pc version and only a few of them that have the same gameplay, for example *"Player Unknown Battleground"* have both PC, Console and mobile phone version of the game with same gameplay. Based on these two patterns, writer will make two group of video games developer, that is console or pc game developer and mobile game developer.

In 2018, there are three big country in video games industry, USA, Japan and China. Based on Newzoo, in 2017, Japan have 14 million in total video game revenue, USA have 25 million, and China have 32 million [7]. The top two of total games revenue on 2017 are China and USA. USA as one of the pioneer in video games culture, mostly making games in all platform, but some games titles that are popular coming from console and PC, *"Monster Hunter World"*, *"Dragon Ball: Fighter"* and *"Call of Duty: WWII"* are one of them [8]. China is a new rising video games country in the world. The interesting thing is, how China raise to the top in games industry with their online mobile video games industry. *"Kings of Glory"* is one of China's biggest title in mobile game and it is one of Tencent's successful video game title.

There are a lot of aspect involved for these two countries to sitting at the top of video game industry, their gaming culture, their technology, their business strategy, etc, but writer will limit the of discussion to be addressed limited only to the competition between USA, with their console and PC games; and China, with their mobile phone games, in video games industry. Writer expect this study could be a reference for anyone who will join the video games industry or already in video games industry.

II. LITERATURE REVIEW

A. Definition of Globalization Market

The meaning of Globalization is integration of national economies through trade, investment, capital flow, labor migration, and technology [9]. Globalization is a result from the removal of barriers between national economies to encourage the flow of goods, services, capital, and labor. Communication technology have the strongest impact on accelerating the pace of globalization – including video games online market. The using of technology allows business, such as large multi-national corporations, to maintain their customers, suppliers, even competitors on a world-wide basis. The break downing of businesses into components according its value chain create opportunities for multiple businesses located at various spots on the globe to participate in the production of a single good or service. This global network, even for a single enterprise, is a part of globalization. Business need to know that their success depends on efficiency and scalability – being able to understand the definition of globalization on mobilize global resources and reach the world market. Globalization is the key for growth of a business in 21st Century. In this century, video games have a strong marketplace, with the internet, customers can buy and download video games, also customers can buy digital item of their choice.

B. Definition of Video Games

There is still no unified definition or theory about the definition of game, therefore some of the definitions or characteristics that the researcher in this field have considered fundamental are still being analyzed. Some generic definition of video game are : All electronic games with an essentially playful objective played with the use of a computer, through diverse media [10]. Interactive animated images accompanied by an environmental sound and an interface [11]. From these two definition, we know that video games can be enjoyed through many different media.

C. The Competition

According to 2018 World-Bank's data, there are 2 big country in economic GDP (Gross Domestic Product), there are USA (18.57 trillion USD) & China (11.2 trillion USD), including in games industry's GDP. The history of video games can be traced from the United States, where some of the first computer games were created. In the past, video games were primarily created for computer science research, testing military strategy, or designed as military propaganda. In the 1960s, Ralph Baer introduced the idea to bring video games to TV screens, and in the 1970s, the first video game console, the Magnavox Odyssey, was born. In 1980s, cheaper and more powerful console games were born, and video game gained its popularity. However, the rise of the personal computer (PC), the over-saturation of the console market, and the infiltration of low-budget poor-quality games led to North America's Video Game Crash in 1983. America's big game developers fell to ruins, while at the same time, Japan's Nintendo was making a large strides in the hardware and game development. Nintendo learns from the mistakes of American video game industry, Nintendo implemented its SEAL of Quality program and

created a chip to prevent unlicensed games from working on its devices. Super Mario Bros is one of the Nintendo's video game title that are success in America, led to Nintendo's huge success in the United States and rivaled Japan's other super-power console at the time, Sega Genesis. In 2001, Microsoft released it XBOX, and video game console market in United State became competitive. However, the violence materials in video games has sparked many debates in the United States. In 1993, Senator Joseph Lieberman argued to ban all video games with violence material in it. This led to the establishment of the Entertainment Software Rating Board, which imposed suggested age ratings on video game's package. In 2005, California State Legislature passed a law forbidding the sale of violent video games to minors without parental supervision. However, in 2011 the United States Supreme Court overturned this law. According to the justices, video games are protected under the First Amendment. Unlike China, whose governments controlled the sale of video game consoles and games, the United States protected the rights of developers and retailers [12].

The banning of console and game accessories in China in 2000, made computer gaming rise in popularity, and computer gaming became primary gaming mechanism in China for a long time. In response to the ban, Nintendo released the iQue, a lower-quality console type platform. The banning of video game console in China goes until September 2013, when China lifted the ban on video game console and accessories. However, it still hard to own personal console gaming in China at that time, because the cost of console and personal computer gaming is so high, also the limited internet connectivity prohibit many gamers to own their personal gaming console. This phenomena led to the rise of popularity of internet cafes and arcades, which is an affordable alternatives to console and PC gaming. Another issue in China's video game's growth at that time is piracy. Piracy of video game in China has made many developers afraid to produce single-player or localized console games. Instead, developers create Massively multi-player Online (MMO) games with subscription fees and sell digital items in the game for its income. With all of the issue and limitation, China still make another way to join video game industry, 5 Minutes' *Happy Farm*, a resource collecting game, is one of pioneer that influenced many of social network game (e.g. Zynga's *Farmville*).

Today, China is the world's largest mobile market subscriber base. According to e-Marketer, China alone is estimated to comprise 30% of the global smartphone market. China has a 33% smartphone penetration, accounting for

446.8 million smartphone users. America, on the other hand, has a 44% smartphone penetration, accounting for 140 million smartphone users. With the popularity of mobile games in china, this means that if only one-third of Chinese smartphone users play mobile games, there would be more Chinese mobile gamers than American smartphone owners. Piracy and access to free games have made makes mobile gaming an affordable and accessible for many gamers in China. The popularity in mobile games in China, and the ability to monetize mobile gamers by in-app purchases and in-app ads has made China as the desirable market for mobile video. As more developers become aware of the Chinese

mobile goldmine, the popularity of mobile gaming will increase as these developers will clamor to climb the charts [13].

III. METHOD

This study use quantitative methods of secondary data from existing data numbers from literature books, journals, articles and the internet. The authors will compare the data from 2 subjects (USA & China games market) that are researched with the existing data, also the authors will analyzed the data into SWOT method, which will led to a new descriptive data which is expected able to be a reference for various studies by other researchers.

IV. DISCUSSION

A. New Wave in Global Trends

As game IP increasingly turns into entertainment franchises, game companies are starting to rethinking their strategic position in the broader entertainment industry. Game companies are one of the main factor of interactive entertainment and are outstanding at stimulating social, creative, and sharing behavior. They also rely almost entirely on direct consumer spending, as opposed to the advertising-based model of many digital or broadcast media companies. At the same time, the number of hours spent watching non-interactive (video) content around game franchises has exploded and is no longer seen as free marketing but as a serious new business opportunity. As traditional media struggle to offer an interactive component around their content, game companies are quickly learning how to monetize video content and its millions of viewers. This could ultimately lead to a media landscape in which game companies hold a key position, as they master both skills. The biggest game companies already entertain a far greater audience than most of world's biggest traditional media and entertainment companies.

In ten years since the iPhone was introduced, many company tried to make and develop a new innovative device which will give a new benchmark in terms of user experience, software, screen technology, and hardware. The market is now set for a new wave of innovation that will offer new possibilities for developers of games and apps alike and boost the replacement cycle [14]. So now in global market we can see a new movement, gamers have new behavior in enjoying game with portable and flexibility in hardware. In 2017, Newzoo released a Global Games Market Reports along with their Global Games Market ForecastModel in 2017.
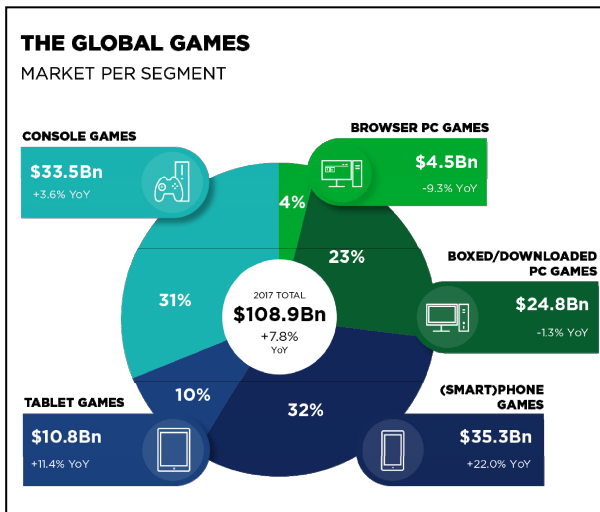
Fig. 1. NEWZOO'S Global Games Market Reports 2017

Mobile gaming (smartphone and tablet) is the largest segment in 2017, accounting for 42% of the total global market. The segment also has the most gamers with billion, the majority of whom are gaming on smartphones. Console is the second-largest segment with revenues of $33.5 billion 2017. PC browser game revenues will decrease by 9.3% to

$4.5 billion as gamers continue their transition to mobile. Revenues for boxed/downloaded PC games will also drop by 1.3% to $24.6 billion. PC revenues of public companies decreased in both Western and Asian markets last year, while emerging markets had single-digit growth rates. We now forecast boxed/downloaded PC games to reach $24.4 billion in 2020, a significant downward revision of our previous estimate. Mobile will remain the largest segment, growing with a CAGR (2016-2020) of 13.9% to claim 50% of the market by 2020 [15].
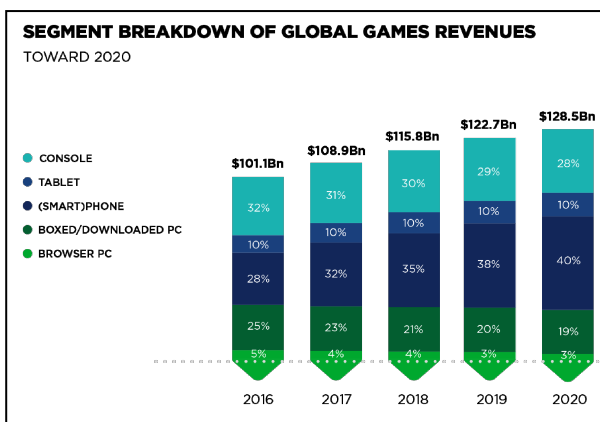

Fig. 2. NEWZOO'S Analytics – 2020 Global Market Games

B. USA with Their Console and China with Their Mobile Games

Each country have their own way to survive in video game industry. There are many factors that affect this thing, advancement of digital technology in that country, lifestyle and

culture of people in that country or even the behavior of gamers, not only the people in that country but also in the world. In 2015, there are 2.457 active game companies in USA across 2.858 locations [16]. The top three states are the main homebase for big video games companies in USA, there are California, Texas, and Washington. Big companies like Electronic Arts, Activision Blizzard, Sony Interactive Entertainment, Take-two Interactive's 2K Games, Ubisoft, Warner Brother Interactive Entertainment, Crystal Dynamics, and Wargaming America have their headquarters in California. Electronics Arts Pogo, Electronic Art's Bioware, Arkane Studios, Battlecry Studios have their headquarters in Texas. Nintendo of America and Microsoft Studios have their headquarter in Washington [17]. From the name of these studios, we can see that most of them are video games companies that are famous by its console and PC game title, also all these video games companies in California, Texas and Washington are the core of videogames industry in America.

Since 2013, total of video games companies in USA gains a significant growth, including indie games developer [18]. This phenomena happened because of some factors, today it is easier for a game companies to do self-publication, self-marketing and distributing their game, also there are more alternative to get financial sources, such as crowdfunding, and it is easier nowadays to gain access in term of increasing game development skill. With a lot of online video game distribution website like Steam, PlayStation Store, Google play, Apple apps store, etc, video games companies can cut through their distribution cost and also these online video game distribution website makes a lot of indie game companies have an easier way to distribute their game. For indie game companies, financial issue is a key factor to their survivability in video games industry, but using a crowd funding with a website like Kickstarter.com is one of financial problem solver for them. There are also a lot of way to promote their game, starting from sponsor a game streamer on YouTube or twitch, or making ads in google play, or by using video games conference that are held every year across USA. With easier access and alternative in selling their video games and easier access at gaining technology necessary to developing a video games, this makes a rapid growth in USA games industry. Seeing how big this video games industry is, in USA there are 481 of the 940 schools offering program courses in game studies [19]. This means there is always a new generation in video games industry in USA. USA also one of pioneer in the growth of video games culture and industry, they have 2 brands of console games headquarters in their country, there are Sony and Microsoft. This makes almost AAA game developers comes from USA and how console and PC platform are more popular among video games companies in USA.

In 2011 research of Economic expert, Derek Scissors, has prediction about China is going surpass American economy [20]. In NEWZOO 2015 games report china has predicted winning the crown in global games market than USA in 2018

[21] and today, China is a new giant country in video game industry, there are two big video games companies in China, there are NetEase and Tencent. In 2016, China now has approximately 183 million gamers, and 71% of the online population in China is an online gamer [22]. Most of China's

game companies active in mobile games platform. This is affected by the fact that China is a mobile-first country. China's average mobile user owns a relatively cheap, but high performance mobile phone, which enables them to play high specification mobile games, also China's smartphone technology keeps on rising, which make more possibilities in development of mobile game industry in China, beside that, lifestyle also made a big effect in the growth of China's game industry, most of online population in China like to spend money online, which makes game companies have more alternative to sell their product. China treads their mobile gamers exclusively, they have their own mobile video game store, their own social media, their own messaging system, and they connect all of them into their game, which make mobile game as a all-in-one access for their player. China's video game industry also affected by how big mobile e-sport in China is. Mobile e-sport is bigger in China than it is in the West. E-sport in console is a way to make more money [23], that is to make a competitive feature in video game, but in China, it happened in mobile game. With the giant video game industry in China, it gives a strong competition among mobile game developers, so it is harder for a new video games company to enter China's video game market. It happened not only for the local video game companies, but also for foreign video game companies. It is harder for them to enter China's video game market, due to the difference of online video game distributor store in China, that's why it is hard to see foreign video game in China, especially in mobile games.

There are some differences in game design between USA and China. USA focusing in developing console games, starting from PlayStation console, almost all the games that were developed are single player. There are some weakness in single player gameplay, that is player can't communicate in game with friends or other player that are also playing the game, player can't shared the excitement with friends in real time. Single player gameplay also have a strength in it, that is with single player gameplay means that player can have a lot more impressiveness in the game, that's why single player gameplay that are mostly developed by USA have a strong storyline and focusing in giving player a new and good experience in gaming. Meanwhile China, because there are times when consoles are banned from China, they tried to find alternative in video game, that is by PC gaming and later mobile gaming. PC game in China mostly are MMORPG (Massive Multiplayer Online Role Playing Game), which offers highly social interactive gameplay with other players, and some of the game content promoting towards building teamwork between other players, like making a hunting party, guild system and party dungeon system. These differences also affected on how they sell the games. USA's are using buy to play system, which means players need to buy the access in order to play the game, but after that, there are no micro-transaction in the game. Micro-transaction are business model in the game that allowed players to buy virtual goods or item with real money. Meanwhile China's MMORPGs are using free to play system, which means players can play the game without buying the access to play it, but there are micro-transaction in the game, which is the main income for the developer besides advertisement. There are differences in game art (character design, environment design, UI design) between USA and China. China have more cute design with a lot more colorful color theme. This is because China targeting female player as a new potential target market. We know that there are not many female player in video game industry, mostly the one who play games are male players. Meanwhile USA's design are more realistic, because they wanted players to have more impressiveness in the game. There are some multiplayer game in console game right now, but limited with five to sixplayers.

C. USA's & China's differences in video game design

China	USA
Focusing on mobile game	Focus on console game
China's target market are casual and semi hardcore player who use game as alternative fun activity and one way to connect with their friends, and also female players based on their games art	USA's target market are casual and also hardcore player who use game asone of their hobby and wanted a full immersiveexperience in playing video game
With a lot of social media connected to their games, China's games offer highly social interactive gameplay	With single player system and limited multiplayer gameplay, USA's games offer highly immersive gaming experience in their game
Colorful and cute designare China's game characteristics	USA's games have a highly realistic visual withstrong storyline
Use free to play system with micro-transaction inthe game	Use buys to play system with no micro-transactionin the game

Fig. 3. Comparation between USA and China video game design

D. SWOT analytic on USA and China game industry

USA	
STRENGTHS	**OPORTUNITIES**
Big Country support for games industry and good access in every country to distribute. In 2016 the American video game industry consisted of 2,457 active game companies across 2,858 office locations. Quality Source Hardware, Developer, Publisher, People	Good education learning for game artist and programmerto have better industry. Hardware provider always have new innovation to this industry. Have online store for thier own video game in worldwide
WEAKNESSES	**THREATS**
Hard to change for big Developer game console to follow new wave in games industry. Most of USA games adapted BUY TO PLAY system	Generation Z , is going dominant for choose mobile game than console or pc Piracy issue affect income the game companies

Fig. 4. SWOT – USA Game Industry

CHINA	
STRENGTHS	**OPORTUNITIES**
Number 1 Population in the world, 40 % Players. NO 1. Mobile developper games in the world now Government Support local games industry and restricted foriegn companies to establish marketplace in China.	Most of online population in china like to spend money online. They have online intergrated system with all thier social media & games. They have cheap mobile phone with high performance.
WEAKNESSES	**THREATS**
China not have worldwide online distributor They market distributor is very competitive, its hard to new company get growing in their market.	Lacks of original intellectual property Languange barrier & Cultural differnces to establish game with global taste.

Fig. 5. SWOT – China Game Industry

V. Conclusion

Both countries have their own advantages, weaknees, opportunity and threats, but if we look at the global population, which is dominated by generation Z, the future of video game culture most likely will go towards mobile game culture. This is based on Generation Z as future population in the world and their behavior towards smartphone and internet. That is why for a new video game developers, they will have an easier start if they start in mobile game, but because of the highly competition in mobile games, and the possibilty of China's mobile game invade the US market, it's makes mobile game market as a high-risk-high-gain market.

The difference in mobile game and console game market is console game have a more stable market. With the easier access to game developing technology, console and pc game market can also become an option for new developer to join video game industry. Easier distribution with online store like Steam store, and easier access to collect crowdfunding are also one of the advantage for game developer to release their game in console or pc platform.

References

[1] G. Galehantomo P.S, "Platform Comparison Between Games Console, Mobile Games And PC Games," *SISFORMA*, vol. 2, no. 1, pp. 23–26, May 2015.

[2] A. Palomba, "Brand Personalities of video Game consoles," *American Communication Journal* , vol. 18, no. 1, pp. 63–82, 2016.

[3] R. Molla, "Millennials have a Netflix account. Gen Z is playing video games," *RECODE*, 17-Jul-2017. [Online]. Available: https://www.recode.net/2017/7/17/15961370/millennials-netflix-account-gen-z-video-games-mobile-phone-nielsen.

[4] A. Sulleyman, "Millennials and Generation Z Interact more through phones and APPS than in real life," *Independent*, 19-Oct-2017. [Online]. Available: https://www.independent.co.uk/life-style/gadgets-and-tech/news/millennials-generation-z-smartphone-habits-apps-communications-real-life-a8008641.html.

[5] G. Sterling, "Move over millennials, Gen-Z now the largest single population segment," *Marketing Land*, 17-Jul-2017. [Online]. Available: https://marketingland.com/move-millennials-gen-z-now-largest-single-population-segment-219788.

[6] Evan, "The 11 Generation Z Statistics Advertisers must know," mediakix.com, Mar-2017. [Online]. Available: http://mediakix.com/2017/03/the-generation-z-statistics-you-should-know/#gs.uhS0rrM. [Accessed: Apr-2018].

[7] NEWZOO, Ed., "Top 100 Countries by Game Revenues," NEWZOO, rep., 2018. [Online]. Available: https://newzoo.com/insights/rankings/top-100-countries-by-game-revenues/

[8] E. Kain, "These Were The Best-Selling Video Games Of January 2018," Forbes, 22-Feb-2018. [Online]. Available: https://www.forbes.com/sites/erikkain/2018/02/22/monster-hunter-world-leads-the-best-selling-video-games-of-january-2018/#46a538427e39.

[9] "Dictionary by Merriam-Webster: America's most-trusted online dictionary," *Merriam-Webster*, 2015. [Online]. Available: http://www.merriam-webster.com/.

[10] Rodriguez, "Definition video game," in *Redefining the value chain of the video games industry 2017* , Elverum, Norway: Kunnskapsverket, 2017, p. 9.

[11] Clais, and Dubois, "Definition video game," in *Redefining the value chain of the video games industry 2017* , Elverum, Norway: Kunnskapsverket, 2017, p. 9.

[12] INMOBI, "Mobile Gaming Cross-Market Analysis." 2014, p. 8.

[13] INMOBI, "Mobile Gaming Cross-Market Analysis." 2014, p. 10.

[14] NEWZOO, Ed., "2017 Global Games Market Report," NEWZOO, San Fransisco, USA, rep., 2017, p. 9.

[15] NEWZOO, Ed., "2017 Global Games Market Report," NEWZOO, San Fransisco, USA, rep., 2017, p. 13.

[16] S. E.Siwek, "VIDEO GAMES in the 21st CENTURY," ESA, Massachusetts, USA, rep., 2017

[17] ESA, "Analyzing the American Video Game Industry 2016." Washington DC, Feb-2017, p. 9.

[18] ESA, "Analyzing the American Video Game Industry 2016." Washington DC, Feb-2017, p. 25.

[19] ESA, "Analyzing the American Video Game Industry 2016." Washington DC, Feb-2017, p. 26.

[20] D. Scissors, "The United States vs. China—Which Economy Is Bigger, Which Is Better," *Journal Backgrounder*, no. 4014, Aug. 2013.

[21] CGA, Ed., "USA & China Battle for #1 Top Games Market." 2015.

[22] M. Koetse, "Game Time : 5 must knows about China's mobile gaming market ," *Weibo*, 11-Jul-2016. [Online]. Available: https://www.whatsonweibo.com/game-time-5-must-knows-chinas-mobile-gaming-market.

[23] NEWZOO, Ed., "2017 Global E-Sports Market Report," NEWZOO, San Fransisco, USA, rep., 2017.